Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Dispatches from the frontlines: A critical care nurse's response to COVID19

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As a critical care RN on Emory University Hospital's Serious Communicable Diseases Unit (SCDU) – the regional treatment center best known for accepting the first Ebola Virus Disease patients in the United States – one of my most important responsibilities is to train Emory clinicians to safely care for people with highly pathogenic infectious diseases. On January 7th, 2020, while co-facilitating one of these trainings, a colleague casually asked if I'd heard about the clusters of pneumonia in China. At that point, I had not; I was still going about my daily "hurry up and wait" preparedness routine, unaware that this offhand mention would evolve into arguably the greatest public health crisis of the last century.

Two months later, I awoke to an iPhone emergency alert notification I'd seen only once before: "SCDU Activation." Within minutes, my team convened a conference call, and I received report on my first patient with COVID-19. He was not as old or sick at baseline as I would have expected a person who was critically ill with this disease to be. I was told he had precipitously decompensated in recent hours and was now intubated, a clinical trajectory I would become well acquainted with over the weeks to come.

Arriving at the SCDU the following morning, I noted the patient had been proned, or made to lie on his stomach, signaling further decline since I had learned of his illness hours before. Entering the anteroom, I donned the same PPE I had worn during training exercises countless times before. Unlike in training, however, a man's life would depend on what I did next.

While I've worked in hundreds of stressful critical care scenarios and am trained to provide care under high-biocontainment conditions, this was the first

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time I'd done both simultaneously. I needed to reconcile the arduous and often contradictory mandates of each endeavor: Biosafety requires slow, deliberate methodologies, while critical care often compels rapid, reflexive actions. In the ICU, I never want for the immediate, hands-on support of teammates. However, in a biocontainment setting, personnel are limited and supplies must pass through multiple checkpoints in a time-consuming process. I would have to multitask care for my labile patient (who at one point even lost his arterial line waveform), while implementing a rigorous investigational drug protocol – without my usual lifelines as the bedside RN. I had to balance these priorities while placing air samplers at set intervals throughout the room, which would help to determine the potential radius of viral spread, at the direction of our partners at CDC. All in all, this amounted to the most challenging shift of my career as a CCRN.

By the time my shift was over and I doffed-out into the "cold" zone, much of the SCDU surge space had been filled with noncritically ill COVID-19 patients, foreshadowing just how rapidly this crisis would escalate. By my next shift, we had exceeded SCDU critical care capacity and a non-biocontainment ICU had been converted into COVID-19 critical care surge space. Alarmingly, half of the patients were in their 30s, and one had no known chronic conditions. All were in fulminant acute respiratory distress syndrome, despite the media narrative that young people rarely succumb to this disease.

When I left the following morning, I walked out into an eerily abandoned Emory University campus and acknowledged that as a genetically male healthcare worker in my mid-30s, I *could* die from this. And, although still in her 20s, my wife's reactive airway disease places her too at increased risk of mortality. I called my wife from the hospital parking lot and asked her what would happen to our 3-year-old daughter if we were to be incapacitated or killed by COVID-19. We made plans for this worst-case scenario.

Novel coronavirus cases continued to rise across the health system, leading the SCDU to expand its consulting role and prompting me to take on additional PPE trainings alongside my ICU responsibilities. During one of these trainings, I was saddened to hear that a patient I'd cared for lost his battle with the illness. A few days later, I watched a patient's mother die as well. My ICU (a designated COVID-19 cohorting unit) remains full, and Emory EDs continue to receive dyspneic, febrile patients who may soon require mechanical ventilatory support. I've witnessed the COVID-19 caseload exceed the capacity of the nation's biocontainment units, and the risk that it may exceed the capacity of many fixed tertiary care centers remains very real.

As someone whose specialty lies at the intersection of critical care, infectious disease, and public health preparedness, I've trained intellectually for this moment for many years. But nothing could have emotionally prepared me for the things I've seen and experienced these last weeks; I have witnessed innumerable deaths in my career, but I've never watched this many relatively young, otherwise healthy people become this sick, this quickly, and die alone.

In all past full-scale exercises, I've felt a sense of relief when emerging from the parallel universe of the biocontainment setting into the big, oblivious world. Things are now more chaotic and hazardous in the community than they are in the isolation setting; leaving the hospital offers no respite. In fact, with people wearing PPE and struggling to social-distance in crowded grocery aisles, my trips to Kroger resemble scenes from a postapocalyptic medical thriller. Hearing the stories of healthcare workers who have contracted and died from COVID-19 heightens the uncertainty of this dystopian reality.

I'm angered by politicians and pundits who ask, "How could we have seen this coming?" One hundred and two years ago, Influenza A H1N1 circumnavigated the globe by leveraging WWI sea lanes to infect a third of the world's population, killing approximately 5% of all living persons on earth. It did so *without* the benefit of global air bridges (Centers for Disease Control and Prevention [CDC], n.d.). Ebola Virus Disease killed 11,323 people 6 years ago for want of critical care access (CDC, 2019). This crisis represents the third time in 18 years that a novel coronavirus has jumped between species, precipitating a public health emergency (Cui & Shi, 2019). My question to the pundits is, "How could you not have seen this coming?"

I have personally warned of the dangers of a health system that prides itself on catering to "first world problems," banking on episodic care of those with chronic, lifestyle-driven diseases, while only a small portion of the population requires critical care at any given moment. I have written of the need to develop pandemic surge capacity, along with others who are far more credible than myself. I pray that our pleas will no longer fall on deaf ears.

When this crisis moves into the recovery phase, we must protect our vulnerable and interdependent populations from the emerging and unknown infectious diseases to come. In our interconnected health ecology, new infectious diseases must no longer be framed as the scourge of developing nations only, but rather as an existential threat to populations worldwide. A colleague once told me that the best day to plant a tree was 20 years ago, and the second-best day is today. Despite the many missed opportunities to prepare for our current crisis, we can choose today to invest in pandemic preparedness for tomorrow.

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